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EXAMINER	
MOON, SEOKYUN	

ART UNIT	PAPER NUMBER
2629	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/511,573	KLINGHULT, GUNNAR	
	Examiner	Art Unit	
	SEOKYUN MOON	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 April 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9,10,12,15-19 and 21-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9,10,12,15-19 and 21-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 October 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. The Applicant's arguments filed on April 28, 2008 have been fully considered.

The Applicant's arguments [Remarks: pg 5] regarding the newly added claim limitation, i.e. specifying the user-manipulable member as being moveable, are moot in view of the new ground(s) of rejection.

The Applicant [Remarks: pg 5 last paragraph – pg 6 second paragraph] argued that Ryan (GB 2,279,750) discloses an active electrode arrangement from which an electric field emanates while the claimed subject matter discloses a more passive implementing principle.

Examiner respectfully disagrees.

Regardless of whether Ryan teaches a sensor operating in a passive principle or an active principle, the claims have failed to specify whether the active sensor of the instant invention operates in a passive principle or an active principle. Examiner respectfully submits that the claims merely disclose some parts of the electronic circuitry of the active sensor and the portions of the electronic circuitry are not unique components of a passive sensing circuit.

The Applicant's arguments regarding the combination of Ryan and Koziuk [Remarks: pg 6 4th paragraph] and the rejection of claims 15, 16, 21, and 22 [Remarks: pg 7 2nd paragraph] are moot in view of new grounds of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 9, 10, 15-17, 21, and 22-24** are rejected under 35 U.S.C. 103(a) as being unpatentable over Rapaich (WO 00/20959) in view of Ryan, Casebolt (US 6,703,599), and Koziuk (US 6,058,485).

As to **claim 9**, Rapaich teaches an input device [fig. 2] comprising:

a pointing device [fig. 2] that includes a user-manipulable member ("*ball transducer 52*") that is moveable with a finger of a user;

an activity sensor (a combination of "*touch plate 60*" and "*switch 82*") [figs. 2 and 4] for having a conductive part (since the capacitance of the switch of the "*touch plate 60*" changes when a user places a hand near the touch plate, the touch plate is formed of a conductive part) and sensing activation of the pointing device [pg 6 lines 22-26], wherein the activity sensor comprises:

a detector device (means for generating a signal according to the change in capacitance) [pg 6 lines 22-24] for sensing a capacitance change in the pointing device;

a threshold comparator ("*comparator 96*") [fig. 4 and pg 6 lines 23-25] connected to receive an output of the detector device; and

wherein an output of the threshold comparator activates movement sensing of the user-manipulable member [pg 6 lines 22-27]; and

a movement sensor ("*directional sensors 54* and *56*") [fig. 2] that senses movement of the user-manipulable member and outputs a pointing command signal in response to sensed movement of the user-manipulable member [pg 5 lines 19-25]; and

wherein the activity sensor is adapted to enable energization of the movement sensor [pg 6 lines 23-27] when the sensed activation of the pointing device exceeds a threshold [pg 6 lines 23-25].

Rapaich does not expressly teach the activity sensor comprising a resonant circuit and a detector device detecting a capacitance change by detecting the change in frequency of the resonant circuit.

However, Ryan teaches a concept of using a resonant circuit (a combination of "*82*", "*83*", and "*84*") [fig. 8] and a detector device detecting a capacitance change by detecting the change in frequency of the resonant circuit, as components of an activity sensor of an electronic device [abstract lines 4-6], wherein the resonant circuit has a frequency that changes when a finger of a user approaches or touches a member by establishment of a capacitance change of electrodes of the device [pg 4 lines 10-13 and pg 7 lines 4-7].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the activity sensor of Koziuk to use a resonant circuit and a detector detecting the capacitance change of the circuit by detecting the change in frequency of the resonant circuit, instead of using the current measurement circuits, as a sensing means for capacitance change in the input device, as taught by Ryan, in order to provide an input device including a capacitive proximity sensor having low power consumption and low manufacturing cost [Ryan: pg 1 lines 12-15].

Rapaich as modified by Ryan does not teach the resonant circuit being capacitively coupled to a conductive part of the user-manipulable member by a member disposed with respect to the user-manipulable member.

However, Casebolt [fig. 1] teaches a concept of integrating an activity sensor (a combination of "*detector pairs 20*" and "*detector pairs 30*") into an user-manipulable member (the cover of the "*mouse 10*") of an input pointing device ("*mouse 10*").

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the input device of Rapaich as modified by Ryan to integrate the activity sensor into a user-manipulable member instead of having the user-manipulable member and the activity sensor separately, as taught by Casebolt, in order to reduce the need of additional components and thus to reduce the manufacturing cost of the device.

Rapaich as modified by Ryan and Casebolt thus teaches the resonant circuit being capacitively coupled to a conductive part of the user-manipulable member by a member disposed with respect to the user-manipulable member since the actively sensor of Rapaich as modified by Ryan includes a conductive part and it is capacitively coupled to the resonant circuit by a member (connections/interface between the touch plate 60 of Rapaich and the resonant circuit of Rapaich as modified by Ryan) disposed with respect to the user-manipulable member.

Rapaich as modified by Ryan and Casebolt does not expressly teach the conductive part of the user-manipulable member being covered by a non-conductive cover.

However, Examiner takes Official Notice that it is well known in the art to cover a trackball with a non-conductive cover.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the input device of Rapaich as modified by Ryan and Casebolt to cover the conductive part of the user-manipulable member with a non-conductive cover, in order to prevent the conductive part of the user-manipulable member from a damage.

Rapaich as modified by Ryan and Casebolt does not expressly teach a timer adapted to switch off the energization of the movement sensor after a time has elapsed without any sensed activation of the pointing device.

However, Koziuk [col. 7 lines 50-52 and abstract] teaches a concept of having an actively sensor which has a timer adapted to switch off the energization of a pointing device after a time has elapsed without any sensed activation of the pointing device.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the input device of Rapaich as modified by Ryan and Casebolt to include a timer adapted to switch off the energization of the movement sensor after a time has elapsed without any sensed activation of the pointing device, as taught by Koziuk, in order to reduce unnecessary power consumption.

As to **claim 10**, Rapaich as modified above does not expressly teach the threshold being adjustable.

However, Ryan [pg 9 lines 4-7] teaches a concept of adjusting a threshold of a threshold comparator included in pointing device.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the threshold comparator of the input device of Rapaich as modified above to have an adjustable threshold value, as taught by Ryan, in order to allow the input device of Rapaich as modified above to be activated at different sensitivities according to the device user's preference.

As to **claim 21**, Rapaich as modified by Ryan, Casebolt, and Koziuk teaches the user-manipulable member being a ball (Rapaich: "*trackball 52*") [Rapaich: fig. 2].

As to **claim 15**, Rapaich as modified by Ryan, Casebolt, and Koziuk does not expressly teach the ball being a metallized plastic ball with a plastic or rubber coating.

However, Examiner takes Official Notice that it is well known in the art to build a trackball by coating a metallized material with a rubber.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to specify the trackball of Rapaich as modified by Ryan, Casebolt, and Koziuk to be made of a metallized material with a rubber coating since a rubber is known for cheap manufacturing cost.

As to **claim 16**, Rapaich as modified by Ryan, Casebolt, and Koziuk teaches the detector device comprising an oscillator (Ryan: "*oscillator 85*") [Ryan: fig. 7] with the resonant circuit (Ryan: "*82*" and "*83*"), wherein a capacitance of the ball forms a part of the resonant circuit [Rapaich: pg 6 lines 22-23] (Note that when a user places a hand near the user manipulable member, it forms a capacitance on the object on which the user places the hand, then it changes the capacitance of the resonant circuit. And also note that the sensing circuitry of the detector of Rapaich is replaced by the sensing circuitry of Ryan).

As to **claim 17**, Rapaich as modified by Ryan, Casebolt, and Koziuk teaches the activity sensor comprising a resonant circuit (a combination of "*82*", "*83*", and "*84*"), an oscillator ("*85*"), and a detector [Ryan: fig. 8].

Rapaich as modified by Ryan, Casebolt, and Koziuk does not expressly teach the detector device comprising a high impedance amplifier.

However, since the Applicant has failed to disclose that specifying the activity sensor to comprise a high impedance amplifier instead of an oscillator with a resonant circuit provides an advantage, is used for a particular purpose, or solves a stated problem, it is an obvious matter of design choice to indicate the detector device to include a high impedance amplifier [Appl. pg 4 lines 14-15].

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use any one of a high impedance amplifier and an oscillator with a resonant circuit since any one of them would perform equally well at processing the detected capacitive change.

As to **claim 22**, Rapaich as modified by Ryan, Casebolt, and Koziuk teaches the conductive part being covered by a non-conductive cover, as discussed with respect to the rejection of claim 1.

Rapaich as modified by Ryan, Casebolt, and Koziuk does not expressly teach the conductive part being a metallized layer covering a core of the ball.

However, Examiner takes Official Notice that it is well known in the art to build a trackball by covering a core of the ball with a metallized layer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to specify the trackball of Rapaich as modified by Ryan, Casebolt, and Koziuk as being formed by covering a core of the ball with a metallized layer, in order to reduce the manufacturing cost of the trackball by providing a core composed of a rubber or an air instead of forming the entire part of the trackball with a metal.

As to **claim 23**, Rapaich as modified by Ryan, Casebolt, and Koziuk teaches the member (connections/interface between the touch plate 60 of Rapaich and the resonant circuit of Rapaich as modified by Ryan) disposed with respect to the user-manipulable member being an antenna or pick-up (picking up the capacitive change detected by the touch plate 60).

As to **claim 24**, Rapaich as modified by Ryan, Casebolt, and Koziuk teaches the member (connections/interface between the touch plate 60 of Rapaich and the resonant circuit of Rapaich as modified by Ryan) disposed with respect to the user-manipulable member being spaced apart from the non-conductive cover.

4. **Claim 12** is rejected under 35 U.S.C. 103(a) as being unpatentable over Rapaich, Ryan, Casebolt, Koziuk as applied to claims 9, 10, 15-17, 21, and 22-24, and further in view of Casebolt (US 6,661,410, herein after "*Casebolt_2*").

Rapaich as modified by Ryan, Casebolt, and Koziuk teaches a timer adapted to switch off the energization of the pointing device (making the device to be in a dormant state) after a time has elapsed [Koziuk: col. 7 lines 50-52 and abstract].

Rapaich as modified by Ryan, Casebolt, and Koziuk does not expressly disclose the time being adjustable.

However, Casebolt_2 [col. 14 lines 25-35] teaches an activity sensor comprising a timer adapted to switch off the energization of a pointing device after a time has elapsed [col. 14 lines 49-51], wherein the time is adjustable [col. 14 lines 58-60 and col. 14 line 67- col. 15 line 2].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the timer of Rapaich as modified by Ryan, Casebolt, and Koziuk so that the time period of the timer required to switch off the energization of the pointing device is adjustable, as taught by Casebolt_2, in order to differentially control the supply of power for signal generation taking into account the relative power consumption rates [col. 14 lines 31-35].

5. **Claims 18** and **19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Rapaich, Ryan, Casebolt, Koziuk as applied to claims 9, 10, 15-17, 21, and 22-24, and further in view of Kiljander (EP 1073004).

As to **claim 18**, Rapaich as modified by Ryan, Casebolt, and Koziuk does not expressly teach the input device including a display for showing menus in which navigation is performed by means of the input device.

However, Kiljander [fig. 1] teaches a concept of integrating an input device comprising a trackball ("*42*") [abstract] into a mobile phone device for navigating menus shown on a display of the mobile phone [fig. 2].

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the input device of Rapaich as modified by Ryan, Casebolt, and Koziuk as an inputting means for a mobile phone, as taught by Kiljander, in order to provide a mobile phone with an input device providing lower power consumption.

As to **claim 19**, Rapaich as modified by Ryan, Casebolt, Koziuk, and Kiljander teaches the device being a mobile telephone [Kiljander: fig. 1].

6. **Claim 25** is rejected under 35 U.S.C. 103(a) as being unpatentable over Rapaich, Ryan, Casebolt, Koziuk as applied to claims 9, 10, 15-17, 21, and 22-24, and further in view of Helmbrecht (US 6,583,784).

Rapaich as modified by Ryan, Casebolt, and Koziuk does not expressly teach the movement sensor being one or more Hall element sensors.

However, Helmbrecht [fig. 1 and claim 1] teaches a concept of using a plurality of Hall sensors for detecting movement of a trackball.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the trackball of Rapaich as modified by Ryan, Casebolt, and Koziuk to use Hall sensors instead of

using rotational sensors, as taught by Helmbrecht, in order to minimize the friction between the sensors and the trackball and thus to provide a smooth rotation of the trackball.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SEOKYUN MOON whose telephone number is (571)272-5552. The examiner can normally be reached on Mon - Fri (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

July 17, 2008
/S. M./
Examiner, Art Unit 2629

/Sumati Lefkowitz/
Supervisory Patent Examiner, Art Unit 2629